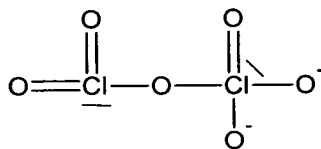
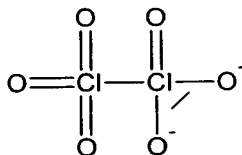


## PATENT CLAIMS

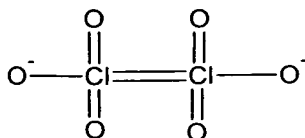
1. Method for the preparation of aqueous solutions of reactive chlorine compounds, preferably dichloric acids and peroxochlorous acid, characterised in that
  - (a) chlorine dioxide is reacted with an aqueous or water-containing solution of hydrogen peroxide or another hydroperoxide or peroxide at a pH value of  $\geq 6,5$ ,
  - (b) the pH value is lowered to 3 to 6 by the addition of an acid,
  - (c) the gaseous free reactive chlorine compound, preferably the dichloric acids or the peroxochlorous acid, respectively, is expelled with a cooled gas and collected in a basic solution with a pH value of  $>10$ , and
  - (d) the collected reactive chlorine compound, preferably the preferably the dichloric acids or the peroxochlorous acid, is incubated with an up to 100-fold excess, preferably an up to 10-fold excess of chlorite at a pH value of 6 to 8, preferably about 7.
2. Aqueous solutions of reactive chlorine compounds obtainable according to claim 1.
3. Aqueous solutions according to Claim 2 comprising dichloric acids of formula  $\text{H}_2\text{Cl}_2\text{O}_6$  and the derivatives, anions or salts thereof with the structural formula of the anions



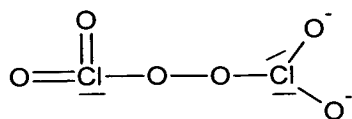
(I)



(II)



(III)



(IV)

wherein the dichloric acids of the anions with structural formulas I - III are especially preferred, obtainable according to the method of claim 1.

4. Aqueous solution according to claim 2 comprising peroxochlorous acid or the anions, derivatives or salts thereof with the structural formula  $\text{O}=\text{ClOOH}$  or  $\text{O}=\text{ClOO}^-$ , respectively, obtainable according to the method in Claim 1.

5. Aqueous solution according to Claim 2 comprising dichloric acids, and the anions, derivatives or salts thereof, according to Claim 3 and peroxochlorous acid and the anions, derivatives and salts thereof, according to Claim 4.

6. Aqueous solution according to one of claims 2 to 5 with a concentration of dichloric acids and derivatives, anions or salts thereof according to Claim 3, or of peroxochlorous acid and derivatives anions and salts thereof according to Claim 4, respectively, of at least 0.01 M, preferably of at least 0.025 M, especially preferable of at least 0.05 M, very specially preferable of at least 0.075 M, even more preferably of at least 0.1 M and most preferable of all of at least 0.5 M.

7. Dichloric acids and derivatives, anions and salts thereof according to Claim 3, whereby the dichloric acids depicted by the structural formulae I to III are preferred.

8. Alkaline metal, alkaline-earth metal, zinc, ammonia and amine salts of dichloric acids or derivatives thereof according to Claim 7.

9. Peroxochlorous acid and anions, derivatives or salts thereof according to Claim 4.
10. Alkaline metals, alkaline-earth metal, zinc, ammonia and amine salts of peroxochlorous acid and derivatives thereof according to Claim 9.
11. Method according to Claim 1, characterised in that the free reactive chlorine compound, preferably the dichloric acid according to Claim 3 or the peroxochlorous acid according to Claim 4, or derivatives thereof, are collected by a cold trap.
12. Method according to Claim 1, thereby characterised in that the free reactive chlorine compound, preferably the dichloric acid, peroxochlorous acid or derivatives thereof from step (d) is fed into an aqueous alkaline solution, preferably with a pH value of equal to or greater than 10 up to about 13.
13. Method according to Claim 12, thereby characterised in that an alkaline metal, alkaline-earth metal, zinc or nitrogen base or a hydroxide of a quaternary ammonium salt is used as a base.
14. Method according to Claim 1, characterised in that the solutions obtained from step (d) are stabilised by increasing the pH value.
15. Pharmaceutical preparation comprising at least an aqueous solution according to one of claims 2 to 5 or a dichloric acid according to Claim 7 or a peroxochlorous acid according to Claim 9 and/or derivatives, anions or salts thereof according to Claims 8 or 10.
16. Pharmaceutical preparation according to Claim 15, characterised in that it is formulated for parental or topical administration.
17. Use of the aqueous solution according to one of the Claims 2 to 5 or a dichloric acid according to Claim 7 or a peroxochlorous acid according to Claim 9

and/or derivatives, anions or salts thereof according to Claims 8 or 10 as oxidants, disinfectants, preservatives and/or bleaches.

18. Use of the aqueous solution according to one of the Claims 2 to 5 or a dichloric acid according to Claim 7 or a peroxochlorous acid according to Claim 9 and/or derivatives, anions or salts thereof according to Claims 8 or 10, for the manufacture of a medicament for the prophylactic and/or therapeutic treatment – in particular in warm blooded animals, in particular human beings – of diseases in which an enhancement of the tissue regeneration, an immunomodulation, an improvement of vaccination reaction and/or radiation sensitisation is indicated or successful – in particular in wound treatment.

19. Pharmaceutical composition - for the prophylactic, and in particular, therapeutic treatment of disorders, preferably for the prophylactic and/or therapeutic treatment – in particular in a warm blooded animal, especially a human being – of diseases where remedies involving the enhancement of tissue regeneration, an immunomodulation, an improvement of vaccination reaction and/or radiation sensitisation are indicated and successful – in particular in the wound treatment of a warm blooded animal who is suffering from such a disease – containing the aqueous solution according to one of the Claims 2 to 5, or a dichloric acid according to Claim 7, or a peroxochlorous acid according to Claim 9, and/or derivatives, anions and/or salts thereof according to Claims 8 or 10, in a prophylactically, or in particular therapeutically, effective volume against the aforementioned diseases as well as one or more pharmaceutically applicable vehicles.

20. Use of the aqueous solution according to one of the Claims 2 to 5 or of a dichloric acid according to Claim 7 or of a peroxochlorous acid according to Claim 9 and/or derivatives, anions and/or salts thereof according to Claims 8 or 10, for the manufacture of a medicament for disinfection purposes, preferably with chlorite as an additive.

**SUMMARY:**

This invention relates to aqueous solutions of reactive chlorine compounds having the empirical formulae  $\text{H}_2\text{Cl}_2\text{O}_6$  or  $\text{ClO}_3\text{H}$ , for example, and the derivatives, anions or salts thereof. The invention further relates to methods for the production of said compounds and the use thereof in the pharmaceutical and particularly in the medical field, in cosmetics, medicinal care and in the domains of food technology and technology.